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EXAMINER

DOAN, KIET M

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 08/13/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/043,815

Applicant(s)

YAMASHITA, ATSUSHI

Examiner

Kiet Doan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>01/11/02</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. **Claims 2 and 19** are objected to because of the following informalities:

In claim 2, lines 5-7, the phrase "mobile terminal using any one of M (M being an integer not less than two) radio frequency bands". Please rephrase as "mobile terminal using multiple radio frequency bands". Appropriate correction is required.

In Claim 19, line 6, the phrase "mobile terminal using any one of M (M being an integer not less than two) radio frequency bands". Please rephrase as "mobile terminal using multiple radio frequency bands". Appropriate correction is required.

2. **Claims 5, 9, 12, 14, 15** are objected to because of the following informalities: The phrase "each of (2 x M-1) pieces". Please rephrase as "each of pieces". Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1 and 2** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Consider claim 1, line 7, the phrase "(hereinafter referred as a terminal moving speed)" renders the claim indefinite because it is unclear whether the

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limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Consider claim 2, lines 15-16, the phrase "(hereinafter referred as speed information)" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**4. Claims 1, 2, 4, 8, 11, 13, 19 and 20** are rejected under 35 U.S.C. 102(e) as being anticipated by Owada (Patent No. 6,014,566).

Consider **Claim 1**, Owada teaches a mobile communication system having a radio base station and a mobile terminal being able to communicate with said radio base station using a specific radio frequency band (Abstract, lines 1-4, Col 2, lines 65-67, Col 3, lines 1-8 teach mobile terminal communication with radio base station and radio frequency band such as micro/macro-cell zone) comprising: a detecting unit to detect information concerning a moving speed of

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said mobile terminal (hereinafter referred as a terminal moving speed) on the basis of a received signal from said mobile terminal (Fig. 4, Col 10, lines 21-23, lines 25-30 teach detect moving speed of mobile station and information) and a selection controlling unit to select the use frequency in a higher radio frequency band when said speed information detected by said detecting unit is higher (Col 4, lines 45-49 teach macro-cell which means as higher radio frequency belong to higher speed mobile) select the use frequency in a lower radio frequency band when said speed information is lower (Col 4, lines 41-46 teach micro-cell which means as lower frequency belong to lower speed mobile) and assign said selected use frequency to the communication between said mobile terminal and said radio base station (Col 4, lines 49-50 teach perform which would be communication between mobile and radio station).

Consider **claim 2**, Owada teaches a radio base station being able to communicate with a mobile terminal using a specific frequency band (Abstract, lines 1-4, Col 2, lines 65-67, Col 3, lines 1-8 teach radio base station communication with mobile terminal and radio frequency band means as micro/macro-cell zone) comprising: a radio communicating unit being able to communicate with said mobile terminal using any one of M (M being an integer not less than two) radio frequency bands (Col 2, lines 65-67, Col 3, lines 1-8 teach plurality of mobile terminals and radio station are using micro/macro-cell means as frequency bands) a speed information detecting unit to detect information concerning a moving speed of said mobile terminal on the basis of a

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received signal from said mobile terminal received by said radio communicating unit (Col 11, lines 8-9, Fig.5 show moving low/high speed are detected) and a use frequency selection controlling unit to select the use frequency in a higher radio frequency band when said information (hereinafter referred as speed information) detected by said speed information detecting unit is higher (Col 4, lines 45-49, teach macro-cell which means as higher radio frequency belong to higher speed mobile and Fig.5 show high speed is detected) select the use frequency in a lower radio frequency band when said information is lower (Col 4, lines 41-46 teach micro-cell which means as lower frequency belong to lower speed mobile and Fig.5 show low speed is detected) and assign said selected use frequency to the communication with said mobile terminal (Col 3, lines 4-8 teach mobile terminal communication with frequency).

Consider **claims 4, 8, 11 and 13**, Owada teaches the radio base station wherein said use frequency selection controlling unit (Col 5, lines 55-56 teach selecting section means know as frequency selection control) comprises: a notification signal generating unit to generate a selected frequency notification signal for notifying said mobile terminal of the selected use frequency (Col 6, lines 14-21 teach movement state notification which select frequency) and a switching timing instruction signal generating unit to generate a switching timing instruction signal for instructing said mobile terminal of a switching timing to the selected use frequency when receiving a confirmation signal in response to said selected frequency notification signal from said mobile terminal (Col 6, lines 46-

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58, Col 7, lines 1-17 both teaches automatic switch which would be switching timing to the select frequency) said radio communicating unit comprises; a control signal adding unit to add said selected frequency notification signal generated by said notification signal generating unit (Col 5, lines 4-6, Col 6, lines 8-12 teaches adds signal and selected frequency notification) or said switching timing instruction signal generated by said switching timing instruction signal generating unit to a transmitting signal to said mobile terminal (Col 5, lines 7-6 teach automatic switch means as switch timing and transmitting section for transmit signal to mobile terminal) and a confirmation signal extracting unit to extract said confirmation signal from a received signal from said mobile terminal, and transmitting said confirmation signal to said switching timing instruction signal generating unit of said use frequency selection controlling unit (Col 5, lines 31-36 teach information update section which would be confirm information of signal in information update section).

Consider **claim 19**, Owada teaches a mobile terminal being able to communicate with a radio base station using a specific radio frequency band comprising (Abstract, lines 1-4, Col 2, lines 65-67, Col 3, lines 1-8 teach mobile terminal communication with radio base station and radio frequency band means as micro/macro-cell zone) a radio communicating unit being able to communicate with said radio base station using any one of M (M being an integer not less than two) radio frequency bands (Col 2, lines 65-67, Col 3, lines 1-8 teach plurality of mobile terminals and radio station are using micro/macro-cell means as

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frequency bands) a selected frequency notification signal receiving unit to receive, from said radio communicating unit (Col 6, lines 13-21 teach movement state notification and selection section means as select frequency notification) a selected frequency notification signal for notifying of a use frequency selected among higher radio frequency bands in said radio base station when speed information of its own is faster or selected among lower radio frequency bands when the speed information of its own is slower; and a use frequency selection controlling unit to select a radio frequency to be used in said radio communicating unit among said radio frequency bands according to said selected frequency notification signal received by said selected frequency notification signal receiving unit (Col 5, lines 55-63, Col 6, lines 15-21 both teaches select frequency low/high speed and notification).

Consider **claim 20**, Owada teaches The mobile terminal further comprising: a confirmation signal transmitting unit to transmit a confirmation signal in response to said selected frequency notification signal to said radio base station (Col 7, lines 57-67 teach information update section which inherently confirmation signal transmit) a switching timing instruction signal receiving unit to receive a switching timing instruction signal as a response to said confirmation signal from said radio base station (Col 6, lines 46-58, Col 7, lines 1-17 both teaches automatic switch which would be switching timing to the select frequency) said use frequency selection controlling unit to execute a switching to a radio frequency notified by said selected frequency notification signal at a



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timing defined by said switching timing instruction signal received by said switching timing instruction signal receiving unit (Col 7, lines 1-21 teach switching operation means as execute switching).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**5. Claims 3, 6, 7, 10 and 16, are rejected under 35 U.S.C. 103(a) as being unpatentable over Owada (Patent No. 6,014,566) in view of Kamel et al. (Patent No. 6,628,958).**

Consider **claim 3**, Owada teaches the invention as disclosed above but fail to teach the radio base station wherein a threshold value information about said speed information, which represents a boundary between said higher speed and said lower speed, is determined on the basis of interference power information with communication with said mobile terminal. In the same field of endeavor, Kamel teaches "Method For Adjusting The Transmit Power Level During Soft Handoff In Wireless Communication System". Further, Kamel disclosed the radio base station wherein a threshold value information about said speed information (Col 5, lines 18-25 teach threshold power level means as threshold value information) which represents a boundary between said higher

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speed and said lower speed (Col 5, lines 11-17 teach threshold level minimum/maximum means such as low/high speed) is determined on the basis of interference power information with communication with said mobile terminal (Col 6, lines 41-47 teach interference between mobile terminal and base station)

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant invention to included, within Owada system, the transmit power level, as taught by kamel to modify the system that provided the users can continue communication regardless of the moving speed.

Consider **claim 6**, Kamel further disclosed the radio base station, wherein said interference power information is determined on the basis of a signal transmission characteristic of each of said radio frequency bands (Col 6, lines 41-46 teach interference power).

Consider **claims 7 and 10**, Kamel further disclosed the radio base station wherein said use frequency selection controlling (Col 6, lines 17-25 teach radio base station with equipment of communication which would include frequency selection controlling) unit comprises a monitoring unit to monitor information about the number of mobile terminals presently in communication (Col 7, lines 50-55, Col 8, lines 26-29 both teaches programming each base station and mobile transmit power control bit request adjustment means know as program can monitor number of mobile present when mobile terminal transmit a request) a received signal-to-noise power ratio estimating unit to determine a measured

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value of a received signal-to-noise power ratio on the basis of a signal received from said mobile terminal by said radio communicating unit (Col 6, lines 27-33 teach signal to noise ratio) and an interference power ratio information calculating unit to calculate said interference power information on the basis of said information about the number of mobile terminals monitored by said monitoring unit and said measured value of said received signal-to-noise power ratio (Col 8, lines 32-37, Col 10, lines 35-44 teach calculating/measure value of signal to noise ratio).

Consider **claim 16**, Kamel further teaches radio base station employing a communication system having a characteristic that a required signal-to-noise power ratio of a received signal in a mobile terminal changes from a tendency to increase to a tendency to decrease according to a moving speed of said mobile terminal, said radio base station (Col 10, lines 34-54 teach expressed signal to noise) comprising.

Kamel teaches the claim limitation **but fail to teach** a radio communicating unit being able to communicate with said mobile terminal using both a frequency belonging to a first frequency band and a frequency belonging to a second frequency band higher than said first frequency band; a speed information detecting unit to detect information concerning a moving speed of said mobile terminal from a signal received from said mobile terminal; and a use frequency selection controlling unit to at least select a frequency belonging to said second frequency band as the use frequency in said radio communication

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unit when said information detected by said speed information detecting unit is not higher than information at which said tendency of said characteristic in said first frequency band changes, select a frequency belonging to said first frequency band as the use frequency in said radio communicating unit when said information detected by said speed information detecting unit is not lower than speed information at which said tendency of said characteristic in said second frequency band changes.

Owada teaches a radio communicating unit being able to communicate with said mobile terminal using both a frequency belonging to a first frequency band (Col 4, lines 41-45 teach low speed in micro zone means as first frequency band) and a frequency belonging to a second frequency band higher than said first frequency band (Col 4, lines 45-49 teach high speed in macro zone means as second frequency band) a speed information detecting unit to detect information concerning a moving speed of said mobile terminal from a signal received from said mobile terminal (Col 5, lines 44-50, Fig.5 shows low/high speed moving is detect) and a use frequency selection controlling unit to at least select a frequency belonging to said second frequency band as the use frequency in said radio communication unit when said information detected by said speed information detecting unit is not higher than information at which said tendency of said characteristic in said first frequency band changes (Col 10, lines 49-61 teach frequency belong to second frequency and change) select a frequency belonging to said first frequency band as the use frequency in said radio communicating unit when said information detected by said speed

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information detecting unit is not lower than speed information at which said tendency of said characteristic in said second frequency band changes (Col 10, lines 24-38 teach frequency belong to first frequency and change)

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to included, within Owada and Kamel system to modify the system that provided to users a quality communication.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 5, 9, 12, 14, 15**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Owada (Patent No. 6,014,566) in view of Kamel et al. (Patent No. 6,628,958) and further view of Huff (Patent No. 5,396,645).

Consider **claims 5, 9, 12, 14 and 15**, Owada and Kamel fails to teach the radio base station wherein said use frequency selection controlling unit comprises a determining unit to compare said speed information detected by said speed information detecting unit with each of (2.times.M-1) pieces of threshold value information about said speed information to determine which range of said threshold value information said speed information falls in; said use frequency

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selection controlling unit selects said use frequency on the basis of a result of determination by said determining unit, and priority information for deciding which radio frequency band should be used for each of a plurality of terminal speed ranges defined by said threshold value information.

In the same field of endeavor, Huff teaches " System And Method For Determining Whether to Assign a Macrocell or Microcell Communication Frequency To a Mobile Communication Terminal". Further, Huff disclosed the radio base station wherein said use frequency selection controlling unit comprises a determining unit to compare said speed information detected by said speed information detecting unit with each of  $(2 \times M - 1)$  pieces of threshold value information about said speed information to determine which range of said threshold value information said speed information falls in (Abstract, Col 5, lines 1-8, Col 8, lines 41-65 teach frequency selection determine, compare/detect speed moving speed) said use frequency selection controlling unit selects said use frequency on the basis of a result of determination by said determining unit (Col 8, lines 41-46 teach frequency selector determine select frequency) and priority information for deciding which radio frequency band should be used for each of a plurality of terminal speed ranges defined by said threshold value information (Col 9, lines 10-53, teach frequency selector select frequency band and assigned).

Therefore, it would have been obvious at the time that the invention was made that a person having ordinary skill in the art would include, Owada and Kamel system, determine whether to assign macro/micro cell communication

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frequency, as taught by Huff to modify to system that provided the users a quality of communication regardless of the moving speed.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**7. Claims 17 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Owada (Patent No. 6,014,566) in view of Kamel et al. (Patent No. 6,628,958) in view of Huff (Patent No. 5,396,645) and further in view of Gesbert et al. (Patent No. 6,760,882).

Consider **claims 17 and 18**, Owada teaches a selection controlling unit to use a frequency belonging to said second frequency band for communication with said mobile terminal when determining that a fading cycle of the received signal from said mobile terminal or a moving speed of said mobile terminal is fast (Col 11, lines 34-42 teach frequency belong to terminal moving fast and registration request signal to terminal which would be determining fading cycle receive) use a frequency belonging to said first frequency band for communication with said mobile terminal when determining that said fading cycle or said moving speed of said mobile terminal is slow (Col 11, lines 13-20 teach

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frequency belong to terminal moving slow and registration request signal to terminal which would be determining fading cycle receive).

Owada fail to teaches a radio apparatus being able to use both a frequency belonging to a first frequency band and a frequency belonging to a second frequency band higher than said first frequency band for communication on forward and reverse links with a mobile terminal, said radio apparatus comprising: a transmitting unit to convert a signal obtained by encoding and interleaving transmitting data into a radio signal, and transmit said radio signal for communication on the forward link to said mobile terminal; a transmitting power controlling unit to control a transmitting power of said radio signal for communication on the forward link on the basis of a received signal from said mobile terminal.

However, Kamel teaches a radio apparatus being able to use both a frequency belonging to a first frequency band and a frequency belonging to a second frequency band higher than said first frequency band for communication on forward and reverse links with a mobile terminal, said radio apparatus (Col 4, lines 30-34, lines 60-66, Col 5, lines 1-8 teach transmit power first/second in soft hand-off means as first/second frequency and communication on forward/reverse link) a transmitting power controlling unit to control a transmitting power of said radio signal for communication on the forward link on the basis of a received signal from said mobile terminal (Col 14, lines 55-61 teach forward link receive signal from mobile terminal). Owada, Kamel and Huff fails to teach a transmitting unit to convert a signal obtained by error-correction-encoding (encoding) and



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interleave transmitting data into a radio signal, and transmit said radio signal for communication on the forward link to said mobile terminal.

In an analogous art, Gesbert teach "Mode Selection For Data Transmission In Wireless Base On Statistical Oarameters". Further, Gesbert disclosed a transmitting unit to convert a signal obtained by error-correction-encoding (encoding) and interleave transmitting data into a radio signal, and transmit said radio signal for communication on the forward link to said mobile terminal (Col 5, lines 61-65, Col 6, lines 1-5, Col 9, lines 27-38, teach transmit unit obtain encoding/interleaving and error rate computes which would be obtain error correction encoding/interleaving).

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill to included, within Owada, Kamel and Huff system, mode selection, as taught by Gesbert to modify the system that provided to the users quality communication regardless of the moving speed.

### ***Conclusion***

The prior art made of record and not relied upon is consider pertinent to applicants disclosed:

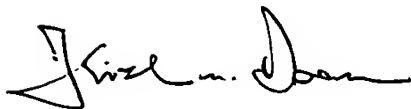
- |                     |                      |
|---------------------|----------------------|
| 1. Huff             | Patent No. 5,396,645 |
| 2. Yamaguchi et al. | Patent No. 5,548,806 |
| 3. Wiedeman et al   | Patent No. 6,272,325 |
| 4. Hayakawa         | Patent No. 6,708,042 |
| 5. Oda              | Patent No. 6,212,381 |
| 6. Furukawa         | Patent No. 6,400,953 |

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet Doan whose telephone number is 703-305-4749. The examiner can normally be reached on 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kiet Doan  
Patent Examiner



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